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(74) Agent: ROBIC, Centre CDP Capital, 1001, Square Victo-
ria, Bloc E -8e étage, Montréal, QC H2Z 2B7 (CA).

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(71) Applicant (for all designated States except US): FER-
MAG INC. [CA/CA]; 1075 côte du Beaver Hall, Bureau
200, Montréal, QC H2Z 1S5 (CA).

(72) Inventors; and

(75) Inventors/Applicants (for US only): MORENCY, Mau-
rice [CA/CA]; 112 De Picardie, Saint-Lambert, QC J4S
1T6 (CA). SHAN, Guojl [CA/CA]; 1768, du Collège,
Ville St Laurent, Québec H4L2M7 (CA). FONTAINE,
Denise [CA/CA]; 6230, 24e Avenue, Rosemont, Montréal
H1T3M5 (CA).

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(54) Title: A HYDROMETALLURGICAL SEPARATION PROCESS OF STEEL MILL ELECTRIC ARC FURNACE (EAF) DUST AND THE PIGMENTS OBTAINED BY THE PROCESS

(57) Abstract: A hydrometallurgical process for the treatment of steel mill electric arc furnace (EAF) dust containing agglomerates of small ferrite particles and larger magnetite particles, the process comprising the steps of: a) washing the EAF dust in water to dissolve soluble salts, metals and simple oxides contained in the dust, said washing step being performed under agitation and with an alkaline pH; b) decanting the solution of step a) to obtain a supernatant liquid containing the dissolve salts, metals and simple oxides and a slurry containing ferrites and magnetites, a non toxic amount of leachable lead and a reduced amount of calcium; c) separating the slurry and the supernatant liquid; d) adding to the slurry obtained in step c) an anionic surfactant to disperse the ferrite particles adsorbed on the magnetite particles; and e) treating the slurry from step d) to produce pigments selected from the group consisting of ferrite pigments, magnetite pigments and ferrite/magnetite pigments.